

HELPING TO KEEP YOUR BUSINESS FLOWING

# FLUID HANDLING

## INTERNATIONAL

SPRING EDITION 2025

Issue 2 Volume 13

CRANE

INNOVATING  
FOR TOMORROW

170  
*Years*

## Operational efficiencies

Utilising smart technology to  
improve petrochem efficiencies

# INNOVATING FOR TOMORROW



# Innovating for tomorrow: Crane company celebrates its 170th anniversary

## Understanding Crane's 170 year old legacy – a journey through successful innovation



Crane Company, a business synonymous with innovation and integrity, has a rich history that spans over 170 years. Founded on July 4, 1855, by Richard Teller Crane, the company has grown from a small brass and bell foundry in Chicago to a global leader in Process Flow Technologies for mission-critical applications, now including Cryogenics.

### Heritage of Innovation

Richard Teller Crane established the R.T. Crane Brass & Bell Foundry with a commitment to honesty, fairness, and superior craftsmanship. His early experiences as a child laborer instilled in him a deep concern for the welfare of his employees, a principle that would guide the company for generations. The foundry initially produced engine parts for the railroad industry. Its first all-brass valve was developed in 1858, and Crane's dedication to customer satisfaction quickly earned the company a reputation for reliability.

By 1865, Crane had expanded its operations, and the company began producing a full line of industrial valves and fittings, including cast iron, malleable iron, and brass products. The introduction of innovative mass-production technologies, such as a steam-powered conveyor system, marked Crane as a pioneer in the industry.

By 1876, the company secured its patent for a steam valve, cementing its status as one of the leaders in the industry. Recognized as one of the "Big Five" valve manufacturers, Crane focused on designing high-quality globe valves for steam plants, which dominated the manufacturing landscape of the 1880s. As industry needs evolved over the next 50 years, Crane expanded its portfolio, introducing gate, globe, and check valves tailored to withstand higher temperatures and more demanding applications. By the early 1900s, the introduction of steel valves replaced cast iron alternatives in steam power plants. Crane became the first manufacturer to integrate a steel foundry within its valve plant, enabling the production of superior products at competitive prices – a groundbreaking achievement at the time.

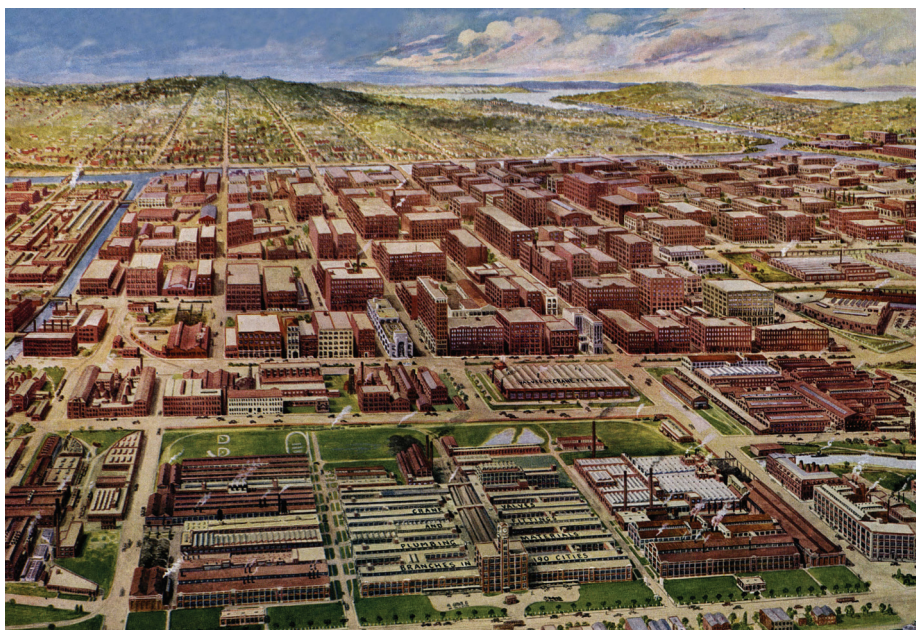
The late 19th and early 20th centuries





were periods of significant growth and innovation for Crane Company. In 1890, R.T. Crane established a metallurgical laboratory, likely the first in the Midwest. Subsequently, Crane products had the strength and quality to meet the challenges of ever higher fluid pressures and temperatures. Crane's commitment to research and development led to numerous advancements in metallurgy and manufacturing processes. The company's engineers published influential research papers on the effects of high temperatures on metals, and Crane became known for its expertise. The company introduced a complete line of air brake equipment, pop safety valves, drainage fittings, and steam and oil separators. In 1903, Crane acquired the Eaton, Cole & Burnham Company, expanding its product line and in 1910 established the Crane Valve Company in Bridgeport, Connecticut. By this time, its Chicago plants employed more than 5,000 people, supplying much of the pipe used for the large central heating systems in Chicago's new skyscrapers, and also selling the enameled cast-iron products that were soon found in bathrooms in residences across the country. In 1912, Crane Company built the first truly modern factory of its time, transitioning entirely to electric power. Located in Chicago, "The Great Works" spanned 160 acres. It housed 47 buildings and featured 72 acres (300,000 m<sup>2</sup>) of floor space, connected by 7 miles (10 km) of on-site railroad tracks, with direct access provided by five railroads.

The evolution of valve technology accelerated during World War I with the development of lubricated plug valves designed to prevent leakage and sticking. Meanwhile, in South Africa, war veteran P.K. Saunders invented the first diaphragm and pinch valve in 1928, revolutionizing the industry. This innovation laid the foundation for what is now known as the Crane Saunders® brand. During World War II, the rapid expansion of navy shipbuilding increased the demand for valves, and Crane responded by quadrupling its steel valve production capacity to 25,000 tons annually. By 1945, the company pioneered the use of steel alloys containing chromium, nickel, and molybdenum to enhance corrosion resistance and high-temperature stability. During both World Wars, Crane Company played a crucial role in supporting the U.S. military. The company supplied thousands of valves, fittings, and other



Crane's 160 acres manufacturing complex – The Great Works, Chicago, circa 1912

essential components for naval vessels, aircraft, and military infrastructure. Crane's innovative use of steel alloys and advanced manufacturing techniques earned it multiple Army-Navy "E" awards for excellence in wartime production.

In 1942, Crane's Technical Paper – Flow of Fluids through Valves, Pipes, Pumps and Fittings was first published, becoming a classic guide for generations of engineers and technicians (CraneTP410.com – Reserve the updated 80th anniversary edition).

Post-war industrial growth fueled advancements in refining, chemical, and petrochemical applications. Crane set industry standards by utilizing 410 stainless steel and Stellite materials, while also securing the first patent for a pressure seal valve. The company's commitment to metallurgical science and material testing established a model for excellence within the valve and fitting industry.

The invention of Teflon by DuPont scientists in 1938 revolutionized sealing and lubrication materials, leading to the development of resilient-seated ball valves and the eventual production of lined pipes by Resistoflex® in the 1950s.

As sleeved plug valves emerged to replace lubricated plug valves, Xomox® launched an innovative trial program that led to increased demand. In response to economic challenges of the 1970s, the high-performance butterfly valve (HPBV) was developed, featuring synthetic rubber seats instead of traditional metal-to-metal designs. This made the valves easier to actuate and suitable for a wider range of applications.

### Diversification and Modernization

The latter half of the 20th century was characterized by diversification and modernization. This era saw Crane Company expanding its global footprint, and Crane's commitment to continuous improvement and operational excellence led to the implementation of Six Sigma and Lean manufacturing principles across the business.

Crane Company acquired numerous companies, including Resistoflex in 1985. Having invented the PTFE lined hose technology in 1953, Crane's Resistoflex® has grown to be the largest plastic-lined piping products supplier in the world. Today, it offers plastic-lined pipe, fittings, complex shapes, vessels, tanks, and hoses in HDPE (high-density polyethylene), PP (polypropylene), PVDF (polyvinylidene fluoride), ETFE (ethylene tetrafluoroethylene), and PTFE (polytetrafluoroethylene).

Crane's legacy is built on a foundation of continuous innovation, ethical business practices, and a commitment to industry advancement. Today, the company's extensive product portfolio includes ISO-15848-1 BH CO3 SSA0 compliant L-TORQ sleeved plug valves, featuring 50% lower torque and a replaceable cartridge design; Xomox® XLB lined ball valves, offering economical and robust fugitive emissions control solutions for the majority of chemical applications; Crane® FK-TrieX, a novel full port triple offset valve that exceeds conventional TOV Cv values by a factor of 4x; Krombach® TUFSEAT ball valves, which surpass industry cycle test

standards by 70,000 cycles; Resistoflex® ROTOMax™ roto-lined products up to 72" diameter, offering zero-corrosion rate at 300°F; Pacific® CSV gate, globe, and check valves; Saunders® I-VUE and M-VUE sensors; HOKE's Gyrolok® innovative tube fittings, which remain unmatched in design; DOPAK® sampling systems; Westlock® EPIC 2 transmitters; and the new CRANE CRYOGENICS™ valve, pipe, and fittings used for mission-critical applications, including rocket launches.

### Key Innovations and Fun Facts

**Steam Power:** In 1865, Crane responded to the rise of steam power with boilers, engines, pumps, steam heating products, valves, pipes, and fittings.

**Crane Elevators:** In the 1860s, Crane Elevator Company began making elevators, becoming one of the world's largest elevator manufacturers and a pioneer in technology and safety innovations. In 1895, Crane's elevator business was sold to Otis Elevator Co.

**Flow of Fluids Handbook:** First published in 1942, this technical paper became a classic guide for designing and operating piping systems.

**World's Largest Shower:** The introduction of the Crane ball valve and plumbing fixtures set new industry standards and established the company as a key player in the plumbing market. In the 1920s, Crane Company designed the first practical bathroom fixtures. The world's largest shower was showcased at the Chicago World's Fair in 1933-1934, highlighting Crane's innovative plumbing solutions. Crane's plumbing business merged in 2008 with American Standard and Eljer to create American Standard Brands.

**Golden Gate Bridge:** In 1935, Crane supplied the railing material for the Golden Gate Bridge, San Francisco.

**NYSE:** Crane was listed on the New York Stock Exchange in 1936. Rockefeller Center: In 1938, Crane supplied the valves for Rockefeller Center, New York.

**First Nuclear Submarine:** Crane contributed to the development of the USS Nautilus by supplying uniquely designed valves.

**Apollo Moon Landing:** Crane pumps were integral to the environmental control systems of the lunar module that landed astronauts on the moon in 1969. In 1981, Crane provided the braking system for the first NASA space shuttle.

**Crane Cryogenics™:** Recent acquisitions of CryoWorks and Technifab in 2024 have strengthened Crane's capabilities in the cryogenics sector, providing products for the storage, distribution, and transfer of cryogenic fluids, used in mission-critical applications including rocket launches.

### Global Expansion and Acquisitions

Crane Company's growth continued through strategic acquisitions and global expansion. The acquisitions in 1994 brought brands like Center Line, Flowseal, and Pacific Valves into Crane's portfolio. In 2001, Crane acquired Xomox, Saunders, DEPA, and ELRO brands, further diversifying its product offerings. The acquisition of Krombach in 2008 strengthened Crane's position in the valve industry, and the acquisition of WTA in 2012 expanded its range of bellows sealed valves. In 2023, Crane acquired BAUM pipe and fittings, and in 2024, Crane acquired CryoWorks and Technifab to strengthen its capabilities and offerings for the cryogenics sector. Today, Crane's global presence serves all continents, and the company's commitment to innovation and customer satisfaction has made it a trusted name in the industry.

### Markets

Crane Company serves a diverse range of markets, providing highly engineered industrial products and solutions across various sectors. Key markets include aerospace, where Crane supplies critical components such as landing gear systems and brake control systems; Process Flow Technologies, offering valves, pumps, pipes, and fittings for industries like chemical process, petrochemical, and water treatment; electronics, providing sensors, actuators, and control systems for industrial automation and medical devices; and cryogenics, where Crane provides products for the storage, distribution, and transfer of cryogenic fluids. In the cryogenics market, Crane's offerings are essential for applications in industries such as healthcare, research, and energy. Additionally, Crane serves markets such as clean energy (LNG and

LH2), space and rocket launch facilities, food and beverage, semiconductor, industrial gas, solar, medical, and pharmaceutical. Crane's commitment to innovation and quality ensures it meets the evolving needs of these industries, maintaining its reputation as a trusted and reliable supplier.



Crane FK-TrieX™

### Innovating for Tomorrow

Today, Crane Company continues to thrive as a global manufacturer of highly engineered industrial products. Operating in various sectors, Crane remains dedicated to innovation and customer satisfaction. Crane Company's history is a testament to its enduring commitment to innovation, quality, and ethical business practices. From its early days in Chicago to its current global presence, Crane has consistently delivered products that meet or exceed the highest standards, making it a trusted name in the industry. As Crane looks to the future, it remains focused on INNOVATING FOR TOMORROW. ■

#### For more information:

This article was written by Crane's Aneta Stephens. Visit [www.cranecpe.com](http://www.cranecpe.com), [www.craneco.com](http://www.craneco.com), view video Circa 1925

